



**BILLING CODE 3510-22-P**

**DEPARTMENT OF COMMERCE**

**National Oceanic and Atmospheric Administration**

**RTID 0648-XA389**

**Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Seattle Multimodal Project at Colman Dock in Washington State**

**AGENCY:** National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

**ACTION:** Notice; Issuance of an Incidental Harassment Authorization.

**SUMMARY:** In accordance with the regulations implementing the Marine Mammal Protection Act (MMPA) as amended, notification is hereby given that NMFS has issued an IHA to the Washington State Department of Transportation (WSDKT) to incidentally harass, by Level A and Level B harassment, marine mammals during construction associated to Seattle Multimodal Project at Colman Dock in Seattle, Washington State.

**DATES:** This Authorization is effective from September 10, 2020, through September 9, 2021.

**FOR FURTHER INFORMATION CONTACT:** Shane Guan, Office of Protected Resources, NMFS, (301) 427-8401. Electronic copies of the application and supporting documents, as well as a list of the references cited in this document, may be obtained online at: <https://www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act>. In case of problems accessing these documents, please call the contact listed above.

## **SUPPLEMENTARY INFORMATION:**

### **Background**

The MMPA prohibits the “take” of marine mammals, with certain exceptions. sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 *et seq.*) direct the Secretary of Commerce (as delegated to NMFS) to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if certain findings are made and either regulations are issued or, if the taking is limited to harassment, a notice of a proposed incidental take authorization may be provided to the public for review.

Authorization for incidental takings shall be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s) and will not have an unmitigable adverse impact on the availability of the species or stock(s) for taking for subsistence uses (where relevant). Further, NMFS must prescribe the permissible methods of taking and other “means of effecting the least practicable adverse impact” on the affected species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of the species or stocks for taking for certain subsistence uses (referred to in shorthand as “mitigation”); and requirements pertaining to the mitigation, monitoring and reporting of the takings are set forth.

The definitions of all applicable MMPA statutory terms cited above are included in the relevant sections below.

### **Summary of Request**

On April 21, 2020, NMFS received a request from WSDOT for an Incidental Harassment Authorization (IHA) to take marine mammals incidental to the fourth year of work associated with the Seattle Multimodal Project at Colman Dock in Seattle, Washington. The application was deemed adequate and complete on May 13, 2020. WSDOT's request is for take of a small number of 11 species of marine mammals by Level A and Level B harassment. Neither WSDOT nor NMFS expects serious injury or mortality to result from this activity and, therefore, an IHA is appropriate.

This IHA covers one year of a larger project for which WSDOT obtained prior IHAs (82 FR 31579, July 7, 2017; 83 FR 35226, July 25, 2018; 84 FR 36581, July 29, 2019). The project will reconfigure the dock while maintaining approximately the same vehicle holding capacity as current conditions. WSDOT complied with all the requirements (*e.g.*, mitigation, monitoring, and reporting) of the previous IHAs and information regarding their monitoring results may be found in the **Potential Effects of the Specified Activity on Marine Mammals and their Habitat** section. WSDOT's previous monitoring reports are available online at <https://www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act>.

## **Description of Proposed Activity**

### *Overview*

The purpose of the Seattle Multimodal Project at Colman Dock is to preserve the transportation function of an aging, deteriorating and seismically deficient facility to continue providing safe and reliable service. The project will also address existing safety

concerns related to conflicts between vehicles and pedestrian traffic and operational inefficiencies.

Key project elements include:

- Replacing and re-configuring the timber trestle portion of the dock;
- Replacing the main terminal building;
- Reconfiguring the dock layout to provide safer and more efficient operations;
- Replacing the vehicle transfer span and the overhead loading structures of Slip 3;
- Replacing vessel landing aids;
- Maintaining a connection to the Marion Street pedestrian overpass;
- Moving the current passenger only ferry (POF) slip temporarily to the north to make way for south trestle construction, and then constructing a new POF slip in the south trestle area.
- Mitigating for additional 5,400 square feet (ft<sup>2</sup>) (502 square meters (m<sup>2</sup>)) of overwater coverage; and
- Capping contaminated sediments.

The Seattle Multimodal Project at Colman Dock involves in-water impact and vibratory pile driving and vibratory pile removal. Details of the proposed construction activities are provided below.

#### *Dates and Duration*

Due to NMFS and U.S. Fish and Wildlife Service (USFWS) in-water work timing restrictions to protect Endangered Species Act (ESA)-listed salmonids, planned WSDOT

in-water construction is limited each year to July 15 through February 15 at this location. For this project, in-water construction is planned to take place between August 1, 2020 and February 15, 2021. The total worst-case time for pile installation and removal is 47 days (Table 1).

### *Specific Geographic Region*

The Seattle Ferry Terminal at Colman Dock, serving State Route 519, is located on the downtown Seattle waterfront, in King County, Washington. The terminal services vessels from the Bainbridge Island and Bremerton routes, and is the most heavily used terminal in the WSF system. The Seattle terminal is located in Section 6, Township 24 North, Range 4 East, and is adjacent to Elliott Bay, a tributary to Puget Sound (Figure 1). Land use in the area is highly urban, and includes business, industrial, the Port of Seattle container loading facility, residential, the Pioneer Square Historic District and local parks.



**Figure 1 -- Location of Seattle Ferry Terminal at Colman Dock**

### *Detailed Description of Specific Activity*

Construction activities during the Year 4 Seattle Multimodal Project at Colman Dock include the following components.

The project will remove the northern timber trestle and replace a portion of it with a new concrete trestle. The area from Marion Street to the north edge of the property will not be rebuilt and after demolition will become a new area of open water. A section of fill contained behind a bulkhead underneath the northeast section of the dock will be removed. WSDOT will construct a new steel and concrete trestle from Columbia Street northward to Marion Street.

The project will maintain the current King County POF functions on site, and address safety concerns related to pedestrian/vehicle conflicts at Yesler Street. A new covered pier, sized to accommodate POF passenger waiting and connected by a new overhead pedestrian bridge to the terminal building and the Marion Street Overpass, will be constructed along the south side of Colman Dock.

The reconfiguration will increase total permanent overwater coverage (OWC) by about 5,400 ft<sup>2</sup> (502 m<sup>2</sup>, about 1.7 percent more than existing overwater coverage at the site), due to the new walkway from the POF facility to Alaskan Way and new stairways and elevators from the POF to the upper level of the terminal. Removal of at least 5,400 ft<sup>2</sup> (502 m<sup>2</sup>) from Pier 48, a condemned timber structure, will serve as mitigation for the permanent OWC increase.

Construction of the reconfigured dock will narrow (reduce) the OWC along the shoreline (at the landward edge) by 180 linear feet (ft) at the north end of the site, while 30 linear ft (9.14 m) of new trestle will be constructed along the shoreline at the south

end of the site. The net reduction of OWC in the nearshore zone is 150 linear ft (45.72 m).

The project includes demolition of the existing terminal building and construction of a new terminal building. The new terminal building will be located along the west edge of the dock, spanning all three slips to handle passenger traffic more efficiently, and will connect to the Marion Street Overpass by an elevated deck.

The project includes reconstruction of the vehicle transfer span and the passenger overhead loading (OHL) structures of Slip 3, including new hydraulic systems. The new OHL will be wider than the existing OHL, to accommodate the increased walk-on passenger volumes.

Sediment beneath the terminal has been contaminated by the creosote-treated piles and other chemicals discharged to the environment over the years. A cap was installed to cover contaminated sediment on the south half of the site prior to trestle expansion in 1990. WSDOT will place a new sediment cap to the north and south of the current cap during construction of the project to contain existing contamination.

Specific in-water pile driving and pile removal activities include the following components:

- Vibratory driving followed by impact proofing (driving) of 36-inch steel piles. A total of 73 piles will be installed using the vibratory hammer over 9 days, with an average of approximately 8 piles installed per day. Vibratory pile driving and impact proofing will occur on different days, and an additional nine days is estimated for impact proofing.



- Vibratory driving and then removal of 24-inch temporary steel piles. A total of 30 piles will be installed and later removed, with an average of 8 piles installed/removed per day. Vibratory pile driving and removal will occur on different days.
- Vibratory removal of 355 14-inch timber piles over 18 days, with approximately 20 piles removed per day.
- Vibratory removal of 30 12-inch steel piles over 3 days, with 10 piles removed per day.

A summary of the pile driving and pile removal activities for the Year 4 Seattle Multimodal Project at Colman Dock is provided in Table 1.

**Table 1 -- Summary of In-Water Pile Driving Durations**

Method	Pile type	Pile size (inch)	Pile number	Piles /day	Minutes /pile	Duration (Days)
Impact drive (proof)	Steel	36	73*	8	10	9
Vibratory drive	Steel	36	73*	8	20	9
Vibratory drive	Steel (temporary)	24	30*	8	20	4
Vibratory remove	Steel (temporary)	24	30*	8	20	4
Vibratory remove	Timber	14	355	20	15	18
Vibratory remove	Steel	12	30	10	20	3
Total			488			47

\* These are same piles

### Comments and Responses

A notice of NMFS' proposal to issue an IHA was published in the **Federal Register** on July 8, 2020 (85 FR 40992). During the 30-day public comment period, NMFS received a comment letter from the Marine Mammal Commission (Commission). Specific comments and responses are provided below.

*Comment 1:* The Commission points out that the noise levels of the 36-inch pile impact driving at 11 m from the source was used, instead of 10 m, thus resulted in a

underestimated Level A harassment and Level B harassment zones for the 36-inch pile. The Commission also suggested a few changes to take estimates based on the newly available monitoring data. The Commission recommends that NMFS (1) include the revised Level A harassment zones and shut-down zones for impact installation of 36-inch steel piles, and (2) revise the Level B harassment takes to 752 for harbor porpoises, 35 for Dall's porpoises, 7 for gray whales, and 141 for Steller sea lions and revise the Level A harassment takes to 21 for harbor porpoises.

*Response:* NMFS recalculated the ensonified areas for Level A and Level B harassment using the noise levels measured at 11 m from the 36-inch steel pile impact driving measurements. The revised Level A and Level B harassment zones and shutdown zones are provided in Table 6 and Table 9, respectively.

NMFS further agrees with the Commission on revising some of the Level B harassment take numbers. Specifically, harbor porpoise Level B harassment take is revised from 649 to 442 based on updated density estimate; Dall's porpoise Level B harassment take is revised from 40 to 35, based on its group size of 5 animals over the 7 months activity period; gray whale Level B harassment take is revised from 5 to 7, based on an assumption of 1 take per month during the 7 months construction window; and Steller sea lion Level B harassment take is revised from 39 to 141, based on an average of 3 takes per day over the 47 days of construction. The updated take numbers are provided in Table 8 below.

*Comment 2:* The Commission points out that WSDOT's monitoring report for 2019–2020 activities did not include the basic information (*e.g.*, distance from the pile to the animal and total number of each species taken, including a correction factor as

appropriate) that was required to be reported under the final authorization (*e.g.*, conditions 6(a)(vii) and (ix), respectively). The Commission recommends that NMFS (1) reinforce that WSDOT must comply with the various reporting requirements in the final authorization, including condition 6(a)(vii), (2) include the standard requirement that WSDOT extrapolate the observed numbers of takes to the extents of the Level B harassment zones when estimating the total numbers of takes and by considering both the observation platform of each Protected Species Observer (PSO) and the species for the 2020 final authorization, and (3) require WSDOT to submit a revised monitoring report for its 2019–2020 activities, consistent with conditions 6(a)(ix) and (xi) in the 2019 final authorization and the recommendations herein.

*Response:* Conditions 6(a)(vii), 6(a)(ix), and 6(a)(xi) of the 2019-2020 IHA to WSDOT’s Seattle Multimodal Project at Colman Dock required WSDOT to submit a final report that includes the following information:

(vii). Distances and bearings of each marine mammal observed to the pile being driven or removed for each sighting (if pile driving or removal was occurring at time of sighting).

(ix). Number of individuals of each species (differentiated by month as appropriate) detected within the monitoring zone, and estimates of number of marine mammals taken, by species (a correction factor may be applied to total take numbers, as appropriate).

(xi). Description of attempts to distinguish between the number of individual animals taken and the number of incidences of take, such as ability to track groups or individuals.

NMFS is reminding WSDOT that it must comply with these conditions to include distances and bearing of marine mammals observed during pile driving, information on numbers of individuals of each species (differentiated by month as appropriate) detected within the monitoring zone, and description of attempts to distinguish between the number of individuals taken and the number of incidences of take during marine mammal monitoring, as it appears that this information was not included in its final report for the 2019 season. NMFS has contacted WSDOT this information.

*Comment 3:* The Commission recommends that NMFS include in the final authorization the requirement that WSDOT conduct pile-driving and -removal activities during daylight hours only.

*Response:* NMFS agrees with the Commission and has included the requirement that WSDOT conduct pile driving and removal activities during daylight hours only. This requirement was in the **Federal Register** for the proposed IHA.

*Comment 4:* The Commission recommends that NMFS reinforce that WSDOT must keep a running tally of the total takes, based on observed and extrapolated takes, for Level B harassment.

*Response:* We agree that WSDOT must ensure they do not exceed authorized takes. As described in the monitoring and reporting requirements, WSDOT is required to keep a running tally of the marine mammals observed within harassment zones and, further, they are required to estimate the number of takes in their final report (applying a correction as appropriate).

*Comment 5:* Commission recommends that NMFS refrain from issuing renewals for any authorization and instead use its abbreviated **Federal Register** notice process, which is similarly expeditious and fulfills NMFS's intent to maximize efficiencies.

*Response:* In prior responses to comments about IHA Renewals (*e.g.*, 84 FR 52464; October 02, 2019 and 85 FR 53342, August 28, 2020), NMFS has explained how the Renewal process, as implemented, is consistent with the statutory requirements contained in section 101(a)(5)(D) of the MMPA, provides additional efficiencies beyond the use of abbreviated notices, and, further, promotes NMFS' goals of improving conservation of marine mammals and increasing efficiency in the MMPA compliance process. Therefore, we intend to continue implementing the Renewal process.

#### **Changes from the Proposed IHA to Final IHA**

There is no change in the WSDOT's Seattle Multimodal Project at Colman Dock construction activities from the **Federal Register** notice for the proposed IHA (85 FR 40992; July 8, 2020).

There was an error on the noise level for the 36-inch impact pile driving reported in the proposed IHA. The single strike sound exposure level ( $SEL_{ss}$ ) of 174 decibel in reference to 1 micropascal-second (dB re 1  $\mu Pa^2s$ ) is based on measurement conducted at 11 m, not 10 m. The corrected 10-m  $SEL_{ss}$  is 175 dB re 1  $\mu Pa^2s$ , and is reflected in Table 5 of this document. This correction also resulted in larger Level A harassment distances and some of the shutdown distances. The revised Level A distances are presented in Table 6 and Table 9 of this document, respectively.

Additionally, numbers of Level B harassment take of several marine mammal species are also updated based on the updated density estimate or the most recent marine

mammal monitoring report. Specifically, harbor porpoise Level B harassment take is revised from 649 to 442 based on updated density estimate of 0.54 porpoises/square kilometer (km<sup>2</sup>) (updated in Table 7 below); Dall's porpoise Level B harassment take is revised from 40 to 35, based on its group size of 5 animals over the 7 months activity period; gray whale Level B harassment take is revised from 5 to 7, based on an assumption of 1 take per month during the 7 months construction window; and Steller sea lion Level B harassment take is revised from 39 to 141, based on an average of 3 takes per day over the 47 days of construction. The updated take numbers are provided in Table 8 below.

### **Description of Marine Mammals in the Area of Specified Activities**

Sections 3 and 4 of the application summarize available information regarding status and trends, distribution and habitat preferences, and behavior and life history, of the potentially affected species. Additional information regarding population trends and threats may be found in NMFS's Stock Assessment Reports (SARs; <https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments>) and more general information about these species (*e.g.*, physical and behavioral descriptions) may be found on NMFS's website (<https://www.fisheries.noaa.gov/find-species>).

Table 2 lists all species or stocks for which take is expected and authorized for this action, and summarizes information related to the population or stock, including regulatory status under the MMPA and ESA and potential biological removal (PBR), where known. For taxonomy, we follow Committee on Taxonomy (2019). PBR is defined by the MMPA as the maximum number of animals, not including natural

mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population (as described in NMFS’s SARs). While no mortality is anticipated or authorized here, PBR and annual serious injury and mortality from anthropogenic sources are included here as gross indicators of the status of the species and other threats.

Marine mammal abundance estimates presented in this document represent the total number of individuals that make up a given stock or the total number estimated within a particular study or survey area. NMFS’s stock abundance estimates for all species represent the total estimate of individuals within the geographic area, if known, that comprises that stock. All managed stocks in this region are assessed in NMFS’s U.S Pacific and Alaska SARs (*e.g.*, Carretta *et al.*, 2020; Muto *et al.*, 2020). All values presented in Table 2 are the most recent available at the time of publication and are available in the 2018 SARs (Carretta *et al.*, 2019; Muto *et al.*, 2019) and draft 2019 SARs (available online at: <https://www.fisheries.noaa.gov/national/marine-mammal-protection/draft-marine-mammal-stock-assessment-reports>).

**Table 2 -- Marine Mammals with Potential Presence within the Project Area**

Common name	Scientific name	Stock	ESA/MMPA status; Strategic (Y/N) <sup>1</sup>	Stock abundance (CV, N <sub>min</sub> , most recent abundance survey) <sup>2</sup>	PBR	Annual M/SI <sup>3</sup>
Order Cetartiodactyla – Cetacea – Superfamily Mysticeti (baleen whales)						
Family Eschrichtiidae						
Gray whale	<i>Eschrichtius robustus</i>	Eastern North Pacific	N	26,960 (0.05, 25,849)	801	139
Family Balaenopteridae (rorquals)						
Humpback whale	<i>Megaptera novaeangliae</i>	California/Oregon/ Washington	Y	2,900 (0.05, 2,784)	16.7	unk
Minke whale	<i>Balaenoptera acutorostrata</i>	California/Oregon/ Washington	N	636 (0.72, 369)	3.5	1.3
Superfamily Odontoceti (toothed whales, dolphins, and porpoises)						
Family Delphinidae						
Killer whale	<i>Orcinus orca</i>	Eastern North Pacific Southern Resident	Y	75 (NA, 75)	0	0
		West coast transient	N	243 (NA, 243)	2.4	0

Bottlenose dolphin	<i>Tursiops truncatus</i>	California/Oregon/Washington offshore	N	1,924 (0.54, 1,255)	11	1.6
Family Phocoenidae (porpoises)						
Harbor porpoise	<i>Phocoena phocoena</i>	Washington inland waters	N	11,233 (0.37, 8,308)	66	7.2
Dall's porpoise	<i>P. dalli</i>	California/Oregon/Washington	N	25,750 (0.45, 17,954)	172	0.3
Order Carnivora – Superfamily Pinnipedia						
Family Otariidae (eared seals and sea lions)						
California sea lion	<i>Zalophus californianus</i>	U.S.	N	257,606 (NA, 233,515)	14,011	321
Stellar sea lion	<i>Eumetopias jubatus</i>	Eastern U.S.	N	43,201 (NA, 43,201)	2,592	113
Family Phocidae (earless seals)						
Harbor seal	<i>Phoca vitulina</i>	Washington northern inland waters	N	11,036 <sup>4</sup>	NA	10.6
Northern elephant seal	<i>Mirounga angustirostris</i>	California breeding	N	179,000 (NA, 81,368)	4,882	8.8

<sup>1</sup>Endangered Species Act (ESA) status: Endangered (E), Threatened (T)/MMPA status: Depleted (D). A dash (-) indicates that the species is not listed under the ESA or designated as depleted under the MMPA. Under the MMPA, a strategic stock is one for which the level of direct human-caused mortality exceeds PBR or which is determined to be declining and likely to be listed under the ESA within the foreseeable future. Any species or stock listed under the ESA is automatically designated under the MMPA as depleted and as a strategic stock.

<sup>2</sup>NMFS marine mammal stock assessment reports online at: <https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments>. CV is coefficient of variation; N<sub>min</sub> is the minimum estimate of stock abundance.

<sup>3</sup>These values, found in NMFS's SARs, represent annual levels of human-caused mortality plus serious injury from all sources combined (e.g., commercial fisheries, ship strike). Annual serious injury/mortality often cannot be determined precisely and is in some cases presented as a minimum value or range. A CV associated with estimated mortality due to commercial fisheries is presented in some cases.

<sup>4</sup>Harbor seal estimate is based on data that are 9 years old, but this is the best available information for use here.

As indicated above, all 11 species (with 12 managed stocks) in Table 2 temporally and spatially co-occur with the activity to the degree that take is reasonably likely to occur, and we have authorized it, with the exception of the Southern Resident killer whale (SPKW). Take of SRKW can be avoided by implementing strict monitoring and mitigation measures (see **Mitigation** and **Monitoring and Reporting** sections below). All species that could potentially occur in the project areas are included in Table 2 of the IHA application.

In addition, the sea otter may be found in inland waters of Washington. However, this species is managed by the U.S. Fish and Wildlife Service and is not considered further in this document.



A detailed description of the marine mammals in the area of the activities is found in the notice of the Year 3 Seattle Multimodal Project at Colman Dock proposed IHA (84 FR 25757, June 4, 2019). This information remains valid so we do not repeat it here but provide a summary table with marine mammal species and stock details (Table 2).

### *Marine Mammal Hearing*

Hearing is the most important sensory modality for marine mammals underwater, and exposure to anthropogenic sound can have deleterious effects. To appropriately assess the potential effects of exposure to sound, it is necessary to understand the frequency ranges marine mammals are able to hear. Current data indicate that not all marine mammal species have equal hearing capabilities (*e.g.*, Richardson *et al.*, 1995; Wartzok and Ketten, 1999; Au and Hastings, 2008). To reflect this, Southall *et al.*, (2007) recommended that marine mammals be divided into functional hearing groups based on directly measured or estimated hearing ranges on the basis of available behavioral response data, audiograms derived using auditory evoked potential techniques, anatomical modeling, and other data. Note that no direct measurements of hearing ability have been successfully completed for mysticetes (*i.e.*, low-frequency cetaceans). Subsequently, NMFS (2018) described generalized hearing ranges for these marine mammal hearing groups. Generalized hearing ranges were chosen based on the approximately 65 decibel (dB) threshold from the normalized composite audiograms, with the exception for lower limits for low-frequency cetaceans where the lower bound was deemed to be biologically implausible and the lower bound from Southall *et al.*, (2007) retained. Marine mammal hearing groups and their associated hearing ranges are provided in Table 3.

**Table 3 -- Marine Mammal Hearing Groups (NMFS, 2018)**

Hearing Group	Generalized Hearing Range*
Low-frequency (LF) cetaceans (baleen whales)	7 Hz to 35 kHz
Mid-frequency (MF) cetaceans (dolphins, toothed whales, beaked whales, bottlenose whales)	150 Hz to 160 kHz
High-frequency (HF) cetaceans (true porpoises, <i>Kogia</i> , river dolphins, cephalorhynchid, <i>Lagenorhynchus cruciger</i> & <i>L. australis</i> )	275 Hz to 160 kHz
Phocid pinnipeds (PW) (underwater) (true seals)	50 Hz to 86 kHz
Otariid pinnipeds (OW) (underwater) (sea lions and fur seals)	60 Hz to 39 kHz
* Represents the generalized hearing range for the entire group as a composite ( <i>i.e.</i> , all species within the group), where individual species' hearing ranges are typically not as broad. Generalized hearing range chosen based on ~65 dB threshold from normalized composite audiogram, with the exception for lower limits for LF cetaceans (Southall <i>et al.</i> , 2007) and PW pinniped (approximation).	

The pinniped functional hearing group was modified from Southall *et al.*, (2007) on the basis of data indicating that phocid species have consistently demonstrated an extended frequency range of hearing compared to otariids, especially in the higher frequency range (Hemilä *et al.*, 2006; Kastelein *et al.*, 2009; Reichmuth and Holt, 2013).

For more detail concerning these groups and associated frequency ranges, please see NMFS (2018) for a review of available information. 11 marine mammal species (7 cetacean and 4 pinniped (2 otariid and 2 phocid) species) have the reasonable potential to co-occur with the proposed construction activities. Please refer to Table 2. Of the cetacean species that may be present, 3 are classified as low-frequency cetaceans (*i.e.*, all mysticete species), 2 are classified as mid-frequency cetaceans (*i.e.*, all delphinid species), and 2 are classified as high-frequency cetaceans (*i.e.*, porpoise species).

#### **Potential Effects of Specified Activities on Marine Mammals and their Habitat**

This section includes a summary and discussion of the ways that components of the specified activity may impact marine mammals and their habitat. The **Estimated Take** section later in this document includes a quantitative analysis of the number of individuals that are expected to be taken by this activity. The **Negligible Impact Analysis and Determination** section considers the content of this section, the **Estimated Take** section, and the **Mitigation** section, to draw conclusions regarding the likely impacts of these activities on the reproductive success or survivorship of individuals and how those impacts on individuals are likely to impact marine mammal species or stocks.

The WSDOT's Seattle Multimodal Project at Colman Dock construction work using in-water pile driving and pile removal could adversely affect marine mammal species and stocks by exposing them to elevated noise levels in the vicinity of the activity area.

A detailed description on the noise impacts on marine mammals and their habitat is provided in the **Federal Register** notice (85 FR 40992; July 8, 2020) for the proposed IHA, and is not repeated here.

### **Estimated Take**

This section provides an estimate of the number of incidental takes authorized through this IHA, which will inform both NMFS' consideration of "small numbers" and the negligible impact determination.

Harassment is the only type of take expected to result from these activities. Except with respect to certain activities not pertinent here, section 3(18) of the MMPA defines "harassment" as any act of pursuit, torment, or annoyance, which (i) has the potential to injure a marine mammal or marine mammal stock in the wild (Level A

harassment); or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering (Level B harassment).

Authorized takes would primarily be by Level B harassment, as noise from in-water impact and vibratory pile driving has the potential to result in disruption of behavioral patterns for individual marine mammals. There is also some potential for auditory injury (Level A harassment) to result, primarily for high frequency cetaceans and phocids because predicted auditory injury zones are relatively large. Auditory injury is unlikely to occur for low- and mid-frequency cetaceans and otariids. The prescribed mitigation and monitoring measures are expected to minimize the severity of the taking to the extent practicable.

As described previously, no mortality is anticipated or authorized for this activity. Below we describe how the take is estimated.

Generally speaking, we estimate take by considering: (1) acoustic thresholds above which NMFS believes the best available science indicates marine mammals will be behaviorally harassed or incur some degree of permanent hearing impairment; (2) the area or volume of water that will be ensonified above these levels in a day; (3) the density or occurrence of marine mammals within these ensonified areas; and, (4) the number of days of activities. We note that while these basic factors can contribute to a basic calculation to provide an initial prediction of takes, additional information that can qualitatively inform take estimates is also sometimes available (*e.g.*, previous monitoring results or average group size). Below, we describe the factors considered here in more

detail and present the take estimate.

### *Acoustic Thresholds*

Using the best available science, NMFS has developed acoustic thresholds that identify the received level of underwater sound above which exposed marine mammals would be reasonably expected to be behaviorally harassed (equated to Level B harassment) or to incur permanent threshold shift (PTS) of some degree (equated to Level A harassment).

*Level B Harassment for non-explosive sources* – Though significantly driven by received level, the onset of behavioral disturbance from anthropogenic noise exposure is also informed to varying degrees by other factors related to the source (*e.g.*, frequency, predictability, duty cycle), the environment (*e.g.*, bathymetry), and the receiving animals (hearing, motivation, experience, demography, behavioral context) and can be difficult to predict (Southall *et al.*, 2007, Ellison *et al.*, 2012). Based on what the available science indicates and the practical need to use a threshold based on a factor that is both predictable and measurable for most activities, NMFS uses a generalized acoustic threshold based on received level to estimate the onset of behavioral harassment. NMFS predicts that marine mammals are likely to be behaviorally harassed in a manner we consider Level B harassment when exposed to underwater anthropogenic noise above received levels of 120 dB re 1  $\mu$ Pa (root-mean-square (rms)) for continuous (*e.g.*, vibratory pile-driving, drilling) and above 160 dB re 1  $\mu$ Pa (rms) for non-explosive impulsive (*e.g.*, seismic airguns) or intermittent (*e.g.*, scientific sonar) sources.

WSDOT's Seattle Multimodal Project at Colman Dock Year 4 construction activity includes the use impact pile driving, vibratory pile driving and pile removal, and therefore the 120 dB and 160 dB re 1  $\mu$ Pa (rms) are applicable.

*Level A harassment for non-explosive sources* - NMFS' Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0) (Technical Guidance, 2018) identifies dual criteria to assess auditory injury (Level A harassment) to five different marine mammal groups (based on hearing sensitivity) as a result of exposure to noise from two different types of sources (impulsive or non-impulsive). WSDOT's Seattle Multimodal Project at Colman Dock Year 4 construction activity includes the use of impulsive (impact pile driving) and non-impulsive (vibratory pile driving) sources.

These thresholds are provided in the table below. The references, analysis, and methodology used in the development of the thresholds are described in NMFS 2018 Technical Guidance, which may be accessed at <https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-acoustic-technical-guidance>.

**Table 4 -- Thresholds Identifying the Onset of Permanent Threshold Shift**

Hearing Group	PTS Onset Acoustic Thresholds* (Received Level)	
	Impulsive	Non-impulsive
Low-Frequency (LF) Cetaceans	<i>Cell 1</i>	<i>Cell 2</i>
	$L_{pk,flat}$ : 219 dB $L_{E,LF,24h}$ : 183 dB	$L_{E,LF,24h}$ : 199 dB
Mid-Frequency (MF) Cetaceans	<i>Cell 3</i>	<i>Cell 4</i>
	$L_{pk,flat}$ : 230 dB $L_{E,MF,24h}$ : 185 dB	$L_{E,MF,24h}$ : 198 dB
High-Frequency (HF) Cetaceans	<i>Cell 5</i>	<i>Cell 6</i>
	$L_{pk,flat}$ : 202 dB $L_{E,HF,24h}$ : 155 dB	$L_{E,HF,24h}$ : 173 dB

Phocid Pinnipeds (PW) (Underwater)	<i>Cell 7</i> $L_{pk,flat}$ : 218 dB $L_{E,PW,24h}$ : 185 dB	<i>Cell 8</i> $L_{E,PW,24h}$ : 201 dB
Otariid Pinnipeds (OW) (Underwater)	<i>Cell 9</i> $L_{pk,flat}$ : 232 dB $L_{E,OW,24h}$ : 203 dB	<i>Cell 10</i> $L_{E,OW,24h}$ : 219 dB
<p>* Dual metric acoustic thresholds for impulsive sounds: Use whichever results in the largest isopleth for calculating PTS onset. If a non-impulsive sound has the potential of exceeding the peak sound pressure level thresholds associated with impulsive sounds, these thresholds should also be considered.</p> <p><u>Note:</u> Peak sound pressure (<math>L_{pk}</math>) has a reference value of 1 <math>\mu</math>Pa, and cumulative sound exposure level (<math>L_E</math>) has a reference value of 1 <math>\mu</math>Pa<sup>2</sup>s. In this Table, thresholds are abbreviated to reflect American National Standards Institute standards (ANSI 2013). However, peak sound pressure is defined by ANSI as incorporating frequency weighting, which is not the intent for this Technical Guidance. Hence, the subscript “flat” is being included to indicate peak sound pressure should be flat weighted or unweighted within the generalized hearing range. The subscript associated with cumulative sound exposure level thresholds indicates the designated marine mammal auditory weighting function (LF, MF, and HF cetaceans, and PW and OW pinnipeds) and that the recommended accumulation period is 24 hours. The cumulative sound exposure level thresholds could be exceeded in a multitude of ways (<i>i.e.</i>, varying exposure levels and durations, duty cycle). When possible, it is valuable for action proponents to indicate the conditions under which these acoustic thresholds will be exceeded.</p>		

### *Ensonified Area*

Here, we describe operational and environmental parameters of the activity that will feed into identifying the area ensonified above the acoustic thresholds, which include source levels and transmission loss coefficient.

### Source Levels

The project includes impact pile driving (proofing) of 36-inch steel piles, vibratory pile driving of 36- and 24-inch steel piles, and vibratory pile removal of 24- and 12-inch steel piles, and 14-inch timber piles. Near source levels (defined as noise level at 10-m from the pile) of these pile driving and removal activities are all based on prior measurements conducted by WSDOT. A summary of the 10-m near source levels of the pile driving and removal activities is provided in Table 5, along with references.

**Table 5 -- Near Source Noise Levels at 10-m from the Pile for Various Pile Driving and Removal at Seattle Multimodal Project at Colman Dock Year 4 Project**

Activity/Pile Size	Source Level (at 10m)	Literature Source
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Impact pile drive (proof) 36 inch steel pile	175 dB (SELss)	WSDOT Colman Year 1 measurement (2018)
Vibratory drive/remove 36 inch steel pile	177 dB (SPLrms)	WSDOT Port Townsend measurement (2010)
Vibratory drive 24 inch steel pile	174 dB (SPLrms)	WSDOT Port Townsend measurement (2010)
Vibratory removal 14 inch timber pile <sup>1</sup>	155 dB (SPLrms)	WSDOT Port Townsend measurement (2011)
Vibratory removal 12 inch steel pile <sup>2</sup>	155 dB (SPLrms)	Caltrans (2015) data for same pile

<sup>1</sup> Vibratory removal of 14-in timber piles is based on removal of 12-in timber piles.

<sup>2</sup> Vibratory removal of 12-in steel piles is based on vibratory installation of 12-in steel piles.

## Level A Harassment Distances and Areas

Distances to Level A harassment were estimated using the NMFS User Spreadsheet. When the NMFS Technical Guidance (2016) was published, in recognition of the fact that ensonified area/volume could be more technically challenging to predict because of the duration component in the new thresholds, we developed a User Spreadsheet that includes tools to help predict a simple isopleth that can be used in conjunction with marine mammal density or occurrence to help predict takes. We note that because of some of the assumptions included in the methods used for these tools, we anticipate that isopleths produced are typically going to be overestimates of some degree, which may result in some degree of overestimate of Level A harassment take. However, these tools offer the best way to predict appropriate isopleths when more sophisticated 3D modeling methods are not available, and NMFS continues to develop ways to quantitatively refine these tools, and will qualitatively address the output where appropriate. For stationary sources such as vibratory pile driving and pile removal, NMFS User Spreadsheet predicts the distance at which, if a marine mammal remained at that distance the whole duration of the activity, it would incur PTS.



A summary of the calculated Level A harassment distances and areas is presented in Table 6.

#### Level B Harassment Distances and Areas

Level B harassment distances from impact pile driving of 36-inch steel piles and from vibratory pile removal of 12-inch steel piles and 14-inch timber piles are calculated using a practical spreading model of the sonar equation

$$EL = SL - 15 \log_{10}(R)$$

where EL is the echo level (or received level), which is the sound threshold level at the Level B harassment (160 dB re 1  $\mu$ Pa for impact pile driving and 120 dB re 1  $\mu$ Pa for vibratory pile driving and pile removal); R is the Level B harassment distance in meters.

Level B harassment distance for vibratory pile driving and removal of the 24-inch steel piles, and the vibratory driving of 36-inch piles is based on in situ measurements of vibratory pile driving of 36-inch piles conducted during Year One of the Seattle Multimodal Project at Colman Dock (WSDOT 2018). The results show that underwater pile driving noise cannot be detected at a distance of 8.69 km (WSDOT 2018).

The Level B harassment areas were estimated by WSDOT using geographic information system (GIS) tools to eliminate land masses and other obstacles that block sound propagation.

A summary of the measured Level B harassment distances and areas is presented in Table 6.

**Table 6 -- Level A and Level B Harassment Distances and Areas**

Pile type, size & pile driving method	Level A harassment distance (m) / area (km <sup>2</sup> )					Level B harassment distance (m) /
	LF cetacean	MF cetacean	HF cetacean	Phocid	Otariid	

						area (km <sup>2</sup> )
Impact drive (proof) 36 inch steel pile	377.5 / 0.37	13.4 / 0.00	449.6 / 0.52	202 / 0.11	14.7 / 0.00	736 / 1.70
Vibratory drive 36 inch steel pile	153.1 / 0.07	13.6 / 0.00	226.4 / 0.16	93.1 / 0.03	6.5 / 0.00	8,690 / 40.53
Vibratory drive/removal, 24 inch steel piles	96.6 / 0.03	8.6 / 0.00	142.8 / 0.06	58.7 / 0.01	4.1 / 0.00	8,690 / 40.53
Vibratory removal 14 inch timber pile	8.0 / 0.00	0.7 / 0.00	11.8 / 0.00	4.8 / 0.00	0.3 / 0.00	2,154 / 5.47
Vibratory removal 12 inch steel pile	6.5 / 0.00	0.6 / 0.00	9.6 / 0.00	3.9 / 0.00	0.3 / 0.00	2,154 / 5.47

### *Marine Mammal Occurrence*

In this section we provide the information about the presence, density, or group dynamics of marine mammals that will inform the take calculations.

Marine mammal occurrence are based on the U.S. Navy Marine Species Density Database (U.S. Navy, 2019) and on WSDOT marine mammal monitoring efforts during prior years of construction work at Seattle Multimodal Project at Colman Dock. A summary of the marine mammal density is provided in Table 7.

**Table 7 -- Marine Mammal Density in the Seattle Multimodal Project at Colman Dock Construction Area**

Marine mammals	Density (animals/km <sup>2</sup> )
Gray whale	0.0048
Humpback whale	0.00074
Minke whale	0.00045
Killer whale (West Coast transient)	0.005141
Bottlenose dolphin	NA
Harbor porpoise	0.54
Dall's porpoise	0.00045
Harbor seal	3.91
Northern elephant seal	0
California sea lion	0.2211
Steller sea lion	0.0478

### *Take Calculation and Estimation*

Here we describe how the information provided above is brought together to produce a quantitative take estimate.

The fundamental approach for take calculation is to use the information aggregated in the Navy density database (U.S. Navy, 2019) with the following equation:

$$\text{Total Take} = \text{marine mammal density} \times \text{ensonified area} \times \text{pile driving days}$$

Some adjustments were made based on prior observation of marine mammals in the project area and account for group size. Specific adjustments for calculating take numbers are provided below.

- Humpback whale – During the prior year WSDOT Multimodal Project construction, three individuals have been observed. Given that humpback whales are occasionally present in the area, it is unlikely they would be present on a daily basis. Instead it is assumed that three individuals may be present in the Level B harassment zones once a month during the in-water work window (7 months), or 21 exposures.
- Minke whale - During the prior year WSDOT Multimodal Project work, one individual minke whale was observed. Observations have been of single individuals, not groups. It is assumed that one individual may be present in the Level B harassment zone once a month during the in-water work window (7 months), or 7 exposures.
- Gray whale - This species is uncommon in the project area. Therefore, Level B harassment take of gray whale is based on take of 1 animal per month over the 7 months work window. This results a total of 7 takes.
- West Coast transient killer whale - Level B harassment exposures were calculated to be two. However, two groups of 10 individuals have been observed. It is

assumed that one group size of 10 animals may be present in the Level B harassment zones once a month during the in-water work window (7 months), or 70 exposures.

- Bottlenose dolphin – The bottlenose dolphin estimate is based on sightings data from Cascadia Research Collective. Between September 2017 and March 2018, a group of up to seven individuals was sighted in South Puget Sound (EPS, 2018). It is assumed that this group is still present in the area. Given how rare bottlenose dolphins are in the area, it is unlikely they would be present on a daily basis. Instead it is assumed that one group size of seven animals may be present in the Level B harassment zone once a month during the in-water work window (7 months), or 49 exposures.

- Northern elephant seal - Estimated northern elephant seals Level B harassment exposures were calculated to be zero. However, one individual of this species was observed in the project area once. Therefore, the take number was adjusted to seven takes based on one animal for the project duration of 7 months.

- California sea lion - Estimated California sea lion Level B harassment exposures were calculated to be 104. However, there were 763 observations during project monitoring, with a high of 29 individuals in one day. Conservatively assuming that 29 individuals may be present in the Level B harassment zones during 47 days of pile driving or removal, it is assumed that 1,363 exposures to pile driving noise may occur.

- Harbor porpoise - Estimated harbor porpoise Level A harassment exposures were calculated to be five. However, given the relatively larger Level A harassment distance for high-frequency cetaceans, we assume that three incidents of Level A harassment may occur per month for the 7 months work window to yield a total of 21 takes by Level A harassment.

- Dall's porpoise – This species is uncommon in the project area. Therefore, Level B harassment take of Dall's porpoise is based on take of 3 animals per group size each month over the 7 months work window. This results a total of 35 takes.
- Harbor seal - Estimated harbor seal Level A harassment exposures were calculated to be three. However, WSDOT made a total of 243 harbor seal observations in the 60-184 m Level A zone, with a high of 2 individuals in 1 day. This portion of the Level A harassment zone would be beyond the prescribed shutdown zone, and this estimated zone would occur on 26 days. Assuming that two individuals may be present once a day for 26 days results in 52 potential Level A harassment takes.
- Steller sea lion – Level B harassment take of Steller sea lion is based on take of 3 animals per day over the 47 days window. This results a total of 141 takes.

A summary of estimated marine mammal takes is listed in Table 8.

**Table 8 -- Estimated Numbers of Marine Mammals that May be Exposed to Received Noise Levels that Cause Level A and Level B Harassment**

Marine mammals	Estimated Level A harassment	Estimated Level B harassment	Estimated total harassment	Abundance	Percentage (%)
Gray whale	0	7	7	26,906	0.02
Humpback whale	0	21	21	2,900	0.72
Minke whale	0	7	7	636	1.10
Killer whale (West Coast transient)	0	70	70	243	28.81
Bottlenose dolphin	0	49	49	1924	2.55
Harbor porpoise	21	442	463	11,233	4.12
Dall's porpoise	0	35	35	25,750	0.16
Harbor seal	52	3,155	3,207	11,036	21.50
Northern elephant seal	0	7	7	179,000	0.02
California sea lion	0	1,363	1,363	257,606	0.72
Steller sea lion	0	141	141	43,201	0.33

## **Mitigation**

In order to issue an IHA under section 101(a)(5)(D) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to the activity, and other means of effecting the least practicable impact on the species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of the species or stock for taking for certain subsistence uses (latter not applicable for this action). NMFS regulations require applicants for incidental take authorizations to include information about the availability and feasibility (economic and technological) of equipment, methods, and manner of conducting the activity or other means of effecting the least practicable adverse impact upon the affected species or stocks and their habitat (50 CFR 216.104(a)(11)).

In evaluating how mitigation may or may not be appropriate to ensure the least practicable adverse impact on species or stocks and their habitat, as well as subsistence uses where applicable, we carefully consider two primary factors:

(1) The manner in which, and the degree to which, the successful implementation of the measure(s) is expected to reduce impacts to marine mammals, marine mammal species or stocks, and their habitat. This considers the nature of the potential adverse impact being mitigated (likelihood, scope, range). It further considers the likelihood that the measure will be effective if implemented (probability of accomplishing the mitigating result if implemented as planned), the likelihood of effective implementation (probability implemented as planned), and;

(2) The practicability of the measures for applicant implementation, which may consider such things as cost, impact on operations, and, in the case of a military readiness

activity, personnel safety, practicality of implementation, and impact on the effectiveness of the military readiness activity.

#### *Time Restriction*

The applicant stated that work would occur only during daylight hours, when visual monitoring of marine mammals can be conducted. In addition, all in-water construction will be limited to the period between August 1, 2020, and February 15, 2021.

#### *Establishing and Monitoring Level A, Level B Harassment Zones, and Exclusion Zones*

Before the commencement of in-water construction activities, which include vibratory pile driving and pile removal, WSDOT shall establish Level A harassment zones where received underwater sound pressure levels (SPLs) or cumulative sound exposure levels ( $SEL_{cum}$ ) could cause PTS.

WSDOT shall also establish Level B harassment zones where received underwater SPLs are higher than 160 dB<sub>rms</sub> re 1 μPa for impulse noise sources (impact pile driving) and 120 dB<sub>rms</sub> re 1 μPa for continuous noise sources (vibratory pile driving and pile removal).

WSDOT shall establish exclusion zones as shown in Table 9 to prevent Level A harassment takes of all cetaceans and otariids, and to minimize Level A harassment takes of phocids.

For in-water heavy machinery work other than pile driving (*e.g.*, standard barges, *etc.*), if a marine mammal comes within 10 m, operations shall cease and vessels shall reduce speed to the minimum level required to maintain steerage and safe working

conditions. This type of work could include the following activities: (1) Movement of the barge to the pile location; or (2) positioning of the pile on the substrate via a crane.

WSDOT shall establish exclusion zones for SRKW and all marine mammals that takes are not authorized at the Level B harassment distances. Specifically, impact pile driving of 36-inch steel piles, a 750 m exclusion zone shall be established. For vibratory driving of 24- and 36-inch steel piles and vibratory pile removal of 24-inch steel piles, a 8.7 km exclusion zone shall be established. For vibratory pile removal of 14-inch timber piles and 12-inch steel piles, a 2.2 km exclusion zone shall be established.

A summary of exclusion zones is provided in Table 9.

**Table 9 -- Exclusion Zones (m) for Various Marine Mammals**

Pile type, size & pile driving method	Exclusion distance (m)					SRKW (m)
	LF	MF	HF	Phocid	Otariid	
Impact drive 36-inch steel pile	380	15	450	60	15	750
Vibratory drive 36-inch steel pile	160	15	230	60	10	8,700
Vibratory drive/removal, 24-inch steel piles	100	10	150	60	10	8,700
Vibratory remove, 14-inch timber pile or 12-inch steel pile	10	10	15	10	10	2,200

LF = low-frequency cetacean; MF = mid-frequency cetacean; HF = high-frequency cetacean; PW = phocid; OW = otariids; SRKW = Southern Resident killer whale

NMFS-approved PSO shall conduct an initial survey of the exclusion zones to ensure that no marine mammals are seen within the zones beginning 30 minutes before pile driving and pile removal of a pile segment begins. If marine mammals are found within the exclusion zone, pile driving of the segment would be delayed until they move out of the area. If a marine mammal is seen above water and then dives below, the contractor would wait 15 minutes. If no marine mammals are seen by the observer in that time it can be assumed that the animal has moved beyond the exclusion zone.



If pile driving of a segment ceases for 30 minutes or more and a marine mammal is sighted within the designated exclusion zone prior to commencement of pile driving, the observer(s) must notify the pile driving operator (or other authorized individual) immediately and continue to monitor the exclusion zone. Operations may not resume until the marine mammal has exited the exclusion zone or 15 minutes have elapsed since the last sighting.

#### *Shutdown Measures*

WSDOT shall implement shutdown measures if a marine mammal is detected within or entering an exclusion zone listed in Table 9.

WSDOT shall also implement shutdown measures if SRKW are sighted within the vicinity of the project area and are approaching the Level B harassment zone during in-water construction activities.

If a killer whale approaches the Level B harassment zone during pile driving or removal, and it is unknown whether it is a SRKW or a transient killer whale, it shall be assumed to be a SRKW and WSDOT shall implement the shutdown measure.

If a SRKW or an unidentified killer whale enters the Level B harassment zone undetected, in-water pile driving or pile removal shall be suspended until the whale exits the Level B harassment zone, or 15 minutes have elapsed with no sighting of the animal, to avoid further Level B harassment.

Further, WSDOT shall implement shutdown measures if the number of authorized takes for any particular species reaches the limit under the IHA (if issued) and if such marine mammals are sighted within the vicinity of the project area and are approaching the Level B harassment zone during in-water construction activities.

### *Coordination with Local Marine Mammal Research Network*

Prior to the start of pile driving for the day, the Orca Network and/or Center for Whale Research will be contacted by WSDOT to find out the location of the nearest marine mammal sightings. The Local Marine Mammal Research Network consists of a list of over 600 (and growing) residents, scientists, and government agency personnel in the U.S. and Canada. Sightings are called or emailed into the Orca Network and immediately distributed to other sighting networks including: the NMFS Northwest Fisheries Science Center, the Center for Whale Research, Cascadia Research, the Whale Museum Hotline and the British Columbia Sightings Network.

Sightings information collected by the Orca Network includes detection by hydrophone. The SeaSound Remote Sensing Network is a system of interconnected hydrophones installed in the marine environment of Haro Strait (west side of San Juan Island) to study orca communication, in-water noise, bottom fish ecology and local climatic conditions. A hydrophone at the Port Townsend Marine Science Center measures average in-water sound levels and automatically detects unusual sounds. These passive acoustic devices allow researchers to hear when different marine mammals come into the region. This acoustic network, combined with the volunteer (incidental) visual sighting network allows researchers to document presence and location of various marine mammal species.

Based on our evaluation of the applicant's mitigation measures, as well as other measures considered by NMFS, all of which are described above, NMFS has determined that the prescribed mitigation measures provide the means effecting the least practicable

adverse impact on the affected species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance.

### **Monitoring and Reporting**

In order to issue an IHA for an activity, Section 101(a)(5)(D) of the MMPA states that NMFS must set forth requirements pertaining to the monitoring and reporting of such taking. The MMPA implementing regulations at 50 CFR 216.104 (a)(13) indicate that requests for authorizations must include the suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species and of the level of taking or impacts on populations of marine mammals that are expected to be present in the proposed action area. Effective reporting is critical both to compliance as well as ensuring that the most value is obtained from the required monitoring.

Monitoring and reporting requirements prescribed by NMFS should contribute to improved understanding of one or more of the following:

- Occurrence of marine mammal species or stocks in the area in which take is anticipated (*e.g.*, presence, abundance, distribution, density).
- Nature, scope, or context of likely marine mammal exposure to potential stressors/impacts (individual or cumulative, acute or chronic), through better understanding of: (1) action or environment (*e.g.*, source characterization, propagation, ambient noise); (2) affected species (*e.g.*, life history, dive patterns); (3) co-occurrence of marine mammal species with the action; or (4) biological or behavioral context of exposure (*e.g.*, age, calving or feeding areas).

- Individual marine mammal responses (behavioral or physiological) to acoustic stressors (acute, chronic, or cumulative), other stressors, or cumulative impacts from multiple stressors.
- How anticipated responses to stressors impact either: (1) long-term fitness and survival of individual marine mammals; or (2) populations, species, or stocks.
- Effects on marine mammal habitat (*e.g.*, marine mammal prey species, acoustic habitat, or other important physical components of marine mammal habitat).
- Mitigation and monitoring effectiveness.

### *Monitoring Measures*

WSDOT shall employ NMFS-approved PSOs to conduct marine mammal monitoring for its Seattle Multimodal Project at Colman Dock. The PSOs will observe and collect data on marine mammals in and around the project area for 30 minutes before, during, and for 30 minutes after all pile removal and pile installation work. NMFS-approved PSOs shall meet the following requirements:

1. Independent observers (*i.e.*, not construction personnel) are required;
2. At least one observer must have prior experience working as an observer;
3. Other observers may substitute education (undergraduate degree in biological science or related field) or training for experience;
4. Where a team of three or more observers are required, one observer should be designated as lead observer or monitoring coordinator. The lead observer must have prior experience working as an observer; and
5. NMFS will require submission and approval of observer Curriculum Vitas;

Monitoring of marine mammals around the construction site shall be conducted using high-quality binoculars (*e.g.*, Zeiss, 10 x 42 power). Due to the different sizes of zones of influence (ZOIs) from different pile sizes, several different ZOIs and different monitoring protocols corresponding to a specific pile size will be established.

- During vibratory driving of 36-inch pile or vibratory driving/removal of 24-inch piles, four land-based PSOs and one ferry-based PSO will monitor the zone.
- During vibratory removal of 12-inch or 14-inch piles, four land-based PSOs will monitor the zone.
- During impact driving of 36-inch piles, three land-based PSOs will monitor the zone.

Locations of the land-based PSOs and routes of monitoring vessels are shown in WSDOT's Marine Mammal Monitoring Plan, which is available online at <https://www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act>.

To verify the required monitoring distance, the exclusion zones and zones of influence will be determined by using a range finder or hand-held global positioning system device.

#### *Reporting Measures*

WSDOT is required to submit a draft report on all marine mammal monitoring conducted under the IHA (if issued) within 90 calendar days of the completion of the project. A final report shall be prepared and submitted within 30 days following resolution of comments on the draft report from NMFS.

The marine mammal report must contain the informational elements described in the Marine Mammal Monitoring Plan, dated May 12, 2020, including, but not limited to:

1. Dates and times (begin and end) of all marine mammal monitoring.
2. Construction activities occurring during each daily observation period, including how many and what type of piles were driven or removed.
3. Weather parameters and water conditions during each monitoring period (*e.g.*, wind speed, percent cover, visibility, sea state).
4. The number of marine mammals observed, by species, relative to the pile location and if pile driving or removal was occurring at time of sighting.
5. Age and sex class, if possible, of all marine mammals observed.
6. PSO locations during marine mammal monitoring.
7. Distances and bearings of each marine mammal observed to the pile being driven or removed for each sighting (if pile driving or removal was occurring at time of sighting).
8. Description of any marine mammal behavior patterns during observation, including direction of travel and estimated time spent within the Level B harassment zones while the source was active.
9. Number of individuals of each species (differentiated by month as appropriate) detected within the monitoring zone.
10. Detailed information about any implementation of any mitigation triggered (*e.g.*, shutdowns and delays), a description of specific actions that ensued, and resulting behavior of the animal, if any.

11. Description of attempts to distinguish between the number of individual animals taken and the number of incidences of take, such as ability to track groups or individuals.
12. Submit all PSO datasheets and/or raw sighting data (in a separate file from the Final Report referenced immediately above).

In the event that personnel involved in the construction activities discover an injured or dead marine mammal, WSDOT shall report the incident to the Office of Protected Resources (OPR) (301-427-8401), NMFS and to the West Coast Region (WCR) regional stranding coordinator (1-866-767-6114) as soon as feasible. If the death or injury was clearly caused by the specified activity, WSDOT must immediately cease the specified activities until NMFS is able to review the circumstances of the incident and determine what, if any, additional measures are appropriate to ensure compliance with the terms of the IHA. WSDOT must not resume their activities until notified by NMFS.

The report must include the following information:

1. Time, date, and location (latitude/longitude) of the first discovery (and updated location information if known and applicable);
2. Species identification (if known) or description of the animal(s) involved;
3. Condition of the animal(s) (including carcass condition if the animal is dead);
4. Observed behaviors of the animal(s), if alive;
5. If available, photographs or video footage of the animal(s); and
6. General circumstances under which the animal was discovered.

### **Negligible Impact Analysis and Determination**

NMFS has defined negligible impact as an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival (50 CFR 216.103). A negligible impact finding is based on the lack of likely adverse effects on annual rates of recruitment or survival (*i.e.*, population-level effects). An estimate of the number of takes alone is not enough information on which to base an impact determination. In addition to considering estimates of the number of marine mammals that might be “taken” through harassment, NMFS considers other factors, such as the likely nature of any responses (*e.g.*, intensity, duration), the context of any responses (*e.g.*, critical reproductive time or location, migration), as well as effects on habitat, and the likely effectiveness of the mitigation. We also assess the number, intensity, and context of estimated takes by evaluating this information relative to population status. Consistent with the 1989 preamble for NMFS’s implementing regulations (54 FR 40338; September 29, 1989), the impacts from other past and ongoing anthropogenic activities are incorporated into this analysis via their impacts on the environmental baseline (*e.g.*, as reflected in the regulatory status of the species, population size and growth rate where known, ongoing sources of human-caused mortality, or ambient noise levels).

To avoid repetition, this introductory discussion of our analyses applies to all the species listed in Table 8, given that the anticipated effects of WSDOT’s Seattle Multimodal Project at Colman Dock activities involving pile driving and pile removal on marine mammals are expected to be relatively similar in nature. There is no information about the nature or severity of the impacts, or the size, status, or structure of any species



or stock that would lead to a different analysis by species for this activity, or else species-specific factors would be identified and analyzed.

Although some marine mammals could experience, and are authorized for Level A harassment in the form of PTS if they stay within the Level A harassment zone during the entire pile driving for the day, the degree of injury is expected to be mild and is not likely to affect the reproduction or survival of the individual animals. It is expected that, if hearing impairments occurs, most likely the affected animal would lose a few dB in its hearing sensitivity, which is not likely to affect its survival and recruitment. Hearing impairment that occur for these individual animals would be limited to the dominant frequency of the noise sources *i.e.*, in the low-frequency region below 2 kilohertz (kHz). Therefore, the degree of PTS is not likely to affect the echolocation performance of the harbor porpoise species which uses frequencies mostly above 100 kHz. Nevertheless, for all marine mammal species, it is known that in general animals avoid areas where sound levels could cause hearing impairment. Nonetheless, we evaluate the estimated take in this negligible impact analysis.

Most marine mammal takes that are anticipated and authorized are expected to be limited to short-term Level B harassment (behavioral disturbance and temporary threshold shift (TTS)) only. Marine mammals present in the vicinity of the action area and taken by Level B harassment would most likely show overt brief disturbance (startle reaction) and avoidance of the area from elevated noise levels during pile driving and pile removal and the implosion noise. These behavioral distances are not expected to affect marine mammals' growth, survival, and reproduction due to the limited geographic area that would be affected in comparison to the much larger habitat for marine mammals in

the Puget Sound. A few marine mammals could experience TTS if they occur within the Level B TTS zone. However, as discussed earlier in this document, TTS is a temporary loss of hearing sensitivity when exposed to loud sound, and the hearing threshold is expected to recover completely within minutes to hours.

Portions of the SRKW range is within the proposed action area. In addition, the entire Puget Sound is designated as the SRKW critical habitat under the ESA. However, WSDOT would be required to implement strict mitigation measures to suspend pile driving or pile removal activities when this stock is detected in the vicinity of the project area. We anticipate that take of SRKW would be avoided. There are no other known important areas for other marine mammals, such as feeding or pupping, areas.

The project also is not expected to have significant adverse effects on affected marine mammals' habitat, as analyzed in detail in the **Potential Effects of Specified Activities on Marine Mammals and their Habitat** section. There is no other ESA designated critical habitat in the vicinity of the Seattle Multimodal Project at Colman Dock construction area. The project activities would not permanently modify existing marine mammal habitat. The activities may kill some fish and cause other fish to leave the area temporarily, thus impacting marine mammals' foraging opportunities in a limited portion of the foraging range. However, because of the relatively short duration of the activities and the relatively small area of the habitat that may be affected, the impacts to marine mammal habitat are not expected to cause significant or long-term negative consequences. Therefore, given the consideration of potential impacts to marine mammal prey species and their physical environment, WSDOT's proposed construction activity at

the Seattle Multimodal Project at Colman Dock would not adversely affect marine mammal habitat.

In summary and as described above, the following factors primarily support our determination that the impacts resulting from this activity are not expected to adversely affect the species or stock through effects on annual rates of recruitment or survival:

- Injury – a few individuals of harbor seal and harbor porpoise could experience Level A harassment in the form of mild PTS;
- Behavioral disturbance – eleven species/stocks of marine mammals could experience behavioral disturbance and TTS from the WSDOT's Seattle Multimodal Project at Colman Dock construction. However, as discussed earlier, the area to be affected is small and the duration of the project is short. In addition, the nature of the take would involve mild behavioral modification; and
- Although portion of the SWKR critical habitat is within the project area, strict mitigation measures such as implementing shutdown measures and suspending pile driving are expected to avoid take of SRKW, and impacts to prey species and the habitat itself are expected to be minimal. No other important habitat for marine mammals exist in the vicinity of the project area.

Based on the analysis contained herein of the likely effects of the specified activity on marine mammals and their habitat, and taking into consideration the implementation of the prescribed monitoring and mitigation measures, NMFS finds that the total marine mammal take from the proposed activity will have a negligible impact on all affected marine mammal species or stocks.

### **Small Numbers**

As noted above, only small numbers of incidental take may be authorized under sections 101(a)(5)(A) and (D) of the MMPA for specified activities other than military readiness activities. The MMPA does not define small numbers and so, in practice, where estimated numbers are available, NMFS compares the number of individuals taken to the most appropriate estimation of abundance of the relevant species or stock in our determination of whether an authorization is limited to small numbers of marine mammals. Additionally, other qualitative factors may be considered in the analysis, such as the temporal or spatial scale of the activities.

The estimated take is below one third of the population for all marine mammals (Table 8).

Based on the analysis contained herein of the proposed activity (including the prescribed mitigation and monitoring measures) and the anticipated take of marine mammals, NMFS finds that small numbers of marine mammals will be taken relative to the population size of the affected species or stocks.

### **Unmitigable Adverse Impact Analysis and Determination**

There are no relevant subsistence uses of the affected marine mammal stocks or species implicated by this action. Therefore, NMFS has determined that the total taking of affected species or stocks would not have an unmitigable adverse impact on the availability of such species or stocks for taking for subsistence purposes.

### **Endangered Species Act**

Section 7(a)(2) of the Endangered Species Act of 1973 (ESA: 16 U.S.C. 1531 *et seq.*) requires that each Federal agency insure that any action it authorizes, funds, or carries out is not likely to jeopardize the continued existence of any endangered or

threatened species or result in the destruction or adverse modification of designated critical habitat. To ensure ESA compliance for the issuance of IHAs, NMFS consults internally, in this case with the West Coast Regional Office, whenever we propose to authorize take for endangered or threatened species.

The only species listed under the ESA with the potential to be present in the action area is the Mexico Distinct Population Segment (DPS) of humpback whales. The effects of this Federal action were adequately analyzed in NMFS' Biological Opinion for the Seattle Multimodal Project at Colman Dock, Seattle, Washington, dated October 1, 2018, which concluded that issuance of an IHA would not jeopardize the continued existence of any endangered or threatened species or destroy or adversely modify any designated critical habitat. NMFS West Coast Region has confirmed the Incidental Take Statement (ITS) issued in 2017 is applicable for the IHA. That ITS exempts the take of seven humpback whales from the Mexico DPS.

#### **National Environmental Policy Act**

To comply with the National Environmental Policy Act of 1969 (NEPA; 42 U.S.C. 4321 *et seq.*) and NOAA Administrative Order (NAO) 216-6A, NMFS must review our action (*i.e.*, the issuance of an IHA) with respect to potential impacts on the human environment.

This action is consistent with categories of activities identified in Categorical Exclusion B4 (IHAs with no anticipated serious injury or mortality) of the Companion Manual for NOAA Administrative Order 216-6A, which do not individually or cumulatively have the potential for significant impacts on the quality of the human environment and for which we have not identified any extraordinary circumstances that

would preclude this categorical exclusion. Accordingly, NMFS has determined that the issuance of the IHA qualifies to be categorically excluded from further NEPA review.

**Authorization**

As a result of these determinations, NMFS has issued an IHA to the WSDOT to conduct Seattle Multimodal Project at Colman Dock Year 4 in Washington State, between September 10, 2020, and September 9, 2021, provided the previously prescribed mitigation, monitoring, and reporting requirements are incorporated.

Dated: September 15, 2020.

Donna S. Wieting,

Director, Office of Protected Resources,

National Marine Fisheries Service.

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